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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,472	07/15/2004	Kenji Kimura	P25659	7889
7055 7590 09/12/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER LEE, CYNTHIA K	
			ART UNIT 1745	PAPER NUMBER
			NOTIFICATION DATE 09/12/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/500,472

Applicant(s)

KIMURA ET AL.

Examiner

Cynthia Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/15/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election with traverse of species corresponding to Fig. 4 in the reply filed on 6/18/2007 is acknowledged. The traversal is on the ground(s) that a lack of unity has not been demonstrated between the species. This has been found persuasive and thus, the restriction requirement has been withdrawn.

Priority

Acknowledgement has been made of applicant's claim for priority under 35 USC 119 (a-d). The certified copy has been filed on 7/15/2004.

Preliminary Amendment

The claims filed 10/15/2004 has been placed in the application file and the information referred to therein has been considered as to the merits.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 10/15/2004 has been placed in the application file and the information referred to therein has been considered.

Drawings

Figures 6 and 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "crimp" is not supported by the disclosure as originally filed.

Applicant is required to cancel the new matter in reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what "a similar material" would be. Or to what degree would "a similar material" have to be similar with respect to "the material."

Claims Analysis

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The limitation "a hole configured to receive the electrolyte into the battery" has been considered but was not given patentable weight because it is not present in the final product. The Specification pg 13 lines 6-7 states that "the hole 9 is tightly sealed with the sealing means 10 to complete the battery 1."

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, and 13-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Terashi (JP 2000-340210).

All references refer to Fig. 1. Terashi discloses a battery comprising: an electrode assembly comprising a positive electrode plate (21) and a negative electrode plate (23), and a separator (22) wound or laminated together, core materials of the positive and negative electrode plates being bared respectively at either end; a cylindrical outer case having a bottom being connected to either end face of the electrode assembly to serve as a battery terminal (1); and a lid connected to the other end face of the electrode assembly and attached to the outer case with a sealer and an

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insulator interposed therebetween (12); and a safety structure that releases gas in response to a build-up of internal pressure (14).

Regarding claim 4, the lid is provided with a projection protruding to the inside of the outer case, and is welded to the bared portion of the core material of the electrode plate of the electrode assembly with the projection making tight contact therewith [0017].

Regarding claim 13, the Examiner notes that the lid on which the valve rests has a cut. It is necessarily continuous or discontinuous. See fig. 1.

Regarding claim 14, a current collector plate is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly, and after placing the electrode assembly in the outer case, the current collector plate is welded to the bottom of the outer case [0018].

Regarding claim 15, the outer case is provided with an inwardly protruding projection, which is welded to the bared portion of the core material of the electrode plate of the electrode assembly in the outer case in tight contact therewith (15 in fig. 1).

Terashi does not expressly disclose an electrolyte being impregnated in the electrode assembly (claim 2). However, the Examiner notes that a battery necessarily contains an electrolyte that conducts ions generated in the electrochemical reaction inside the battery can. Should it not be anticipatory, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of Terashi with an electrolyte for the benefit of conducting metal ions to make the battery functional.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 6-8, 10, 11, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332).

All references refer to Fig. 1. Terashi discloses a battery comprising: an electrode assembly comprising a positive electrode plate (21) and a negative electrode plate (23), and a separator (22) wound or laminated together, core materials of the positive and negative electrode plates being bared respectively at either end; a cylindrical outer case having a bottom being connected to either end face of the electrode assembly to serve as a battery terminal (1); and a lid connected to the other end face of the electrode assembly and attached to the outer case with a sealer and an insulator interposed therebetween (12); and a safety structure that releases gas in response to a build-up of internal pressure (14).

Terashi does not expressly disclose an electrolyte being impregnated in the electrode assembly. However, the Examiner notes that a battery necessarily contains an electrolyte that conducts ions generated in the electrochemical reaction inside the battery can. Should it not be anticipatory, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of

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Terashi with an electrolyte for the benefit of conducting metal ions to make the battery functionable.

Terashi does not disclose wherein the lid includes a connecting part in one piece therewith that engages with and connects a bottom part of the outer case of another battery to be connected (claim 1). Marukawa teaches a lid includes a connecting part in one piece therewith that engages with and connects a bottom part of the outer case of another battery to be connected (1 in fig. 1). Regarding applicant's claims 10 and 17, bottom of the outer case of one battery being fitted into the connecting part of the lid of the other battery and their mating parts being welded together (Marukawa 4:65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a connecting piece of Marukawa to the battery of Terashi for the benefit of connecting two adjacent batteries stably.

Regarding claim 3, the lid is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly to serve as a current collector plate [0017].

Regarding claim 6, the Examiner notes that the lid on which the valve rests has a cut. It is necessarily continuous or discontinuous. See fig. 1.

Regarding claim 7, a current collector plate is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly, and after placing the electrode assembly in the outer case, the current collector plate is welded to the bottom of the outer case [0018].

Regarding claim 8, the outer case is provided with an inwardly protruding projection, which is welded to the bared portion of the core material of the electrode plate of the electrode assembly in the outer case in tight contact therewith (15 in fig. 1).

Regarding claim 11, the lid is provided with a projection protruding to the inside of the outer case, and is welded to the bared portion of the core material of the electrode plate of the electrode assembly with the projection making tight contact therewith [0017].

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332) as applied to claim 1 above, and further in view of Ikoma (US 5663007).

Terashi modified by Marukawa discloses a cylindrical portion continuous with the outer periphery of the lid with a gasket interposed therebetween.

Terashi modified by Marukawa does not disclose wherein the outer case and the lid are joined together by a crimp at the open end of the outer case. However, Ikoma discloses of crimping a metal casing and a lid having a safely vent in conventional batteries (2:20-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to crimp the battery in addition to the sealing gasket for the benefit of making the gasket tighter between the can and the lid.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) as applied to claim 2 above, in view of Ikoma (US 5663007).

Terashi discloses a cylindrical portion continuous with the outer periphery of the lid with a gasket interposed therebetween.

Terashi does not disclose wherein the outer case and the lid are joined together by a crimp at the open end of the outer case. However, Ikoma discloses of crimping a metal casing and a lid having a safely vent in conventional batteries (2:20-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to crimp the battery in addition to the sealing gasket for the benefit of making the gasket tighter between the can and the lid.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) in view of Marukawa (US 5900332) as applied to claim 1 above, and further in view of Tucholski (US 2002/0031705) and the definition of "clad" (from The American Heritage Dictionary retrieved from <http://www.credoreference.com/entry/4073723>, on Aug 28, 2007).

Terashi does not disclose wherein a plate material that is a same material or a similar material to the material of the outer case on the other side. Marukawa discloses that both the can and the lid are made of metal (3:60-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

make the can and the lid of Terashi's battery of both metal for the benefit of making the battery cover strong against external forces.

Terashi modified by Marukawa does not disclose that the lid comprises a clad plate consisting of a plate material that is resistant to the electrolyte on a side facing the outer case. Tucholski teaches that the inner surface of cover 445, as well as the peripheral portion of the upper surface of cover 445, is coated with a layer 475 of electrical insulation material, such as an epoxy, nylon, Teflon.RTM., or vinyl.

Additionally, the inner and outer surfaces of can 412 are also coated in the region of the open end of can 412. Such coatings 475 may be applied directly to the can and cover by spraying, dipping, or electrostatic deposition. By providing such a coating, negative outer cover 445 may be electrically insulated from can 412 [0097]. By applying the insulation coating to the areas of the can, cover, and collector nail within the battery that are proximate the void area within the battery's internal volume, those areas may be protected from corrosion. While a coating consisting of a single layer of the epoxy, nylon, Teflon.RTM., or vinyl materials noted above will function to prevent such corrosion, it is conceivable that the coating may be applied using layers of two different materials or made of single layers of different materials applied to different regions of the components. For example, the peripheral region of the cover may be coated with a single layer of material that functions both as an electrical insulator and an anti-corrosion layer, while the central portion on the inner surface of the cover may be coated with a single layer of a material that functions as an anti-corrosion layer but does not also function as an electrical insulator. Such materials may include, for

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example, asphalt or polyamide [0098]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the inner face of the can with an anti-corrosion layer for the benefit of making the lid corrosion resistant and thus, increasing the service life of the battery.

The Examiner has taken the definition of "clad" to mean: to cover with a protective or insulating layer of other material, from The American Heritage Dictionary. Thus, the anti-corrosion resistant layer of Tucholski reads on the Applicant's "clad plate."

clad¹



pronunciation

tr. v. **clad**, **clad.ding**, **clads**.

1. To sheathe or cover (a metal) with a metal.
2. To cover with a protective or insulating layer of other material.
[Back-formation from cladding.]

The American Heritage Dictionary of the English Language, © Houghton Mifflin Company 2003 ①

APA | MLA | Chicago : Citing this entry

clad 1. (2003). In *The American Heritage® Dictionary of the English Language*. Retrieved August 28, 2007, from <http://www.credoreference.com/entry/4073723>

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terashi (JP 2000-340210) as applied to claim 2 above, in view of Marukawa (US 5900332), Tucholski (US 2002/0031705), and the definition of "clad" (from The American Heritage

Dictionary retrieved from <http://www.credoreference.com/entry/4073723>, on Aug 28, 2007).

Terashi does not disclose wherein a plate material that is a same material or a similar material to the material of the outer case on the other side. Marukawa discloses that both the can and the lid are made of metal (3:60-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the can and the lid of Terashi's battery of both metal for the benefit of making the battery cover strong against external forces.

Terashi modified by Marukawa does not disclose that the lid comprises a clad plate consisting of a plate material that is resistant to the electrolyte on a side facing the outer case. Tucholski teaches that the inner surface of cover 445, as well as the peripheral portion of the upper surface of cover 445, is coated with a layer 475 of electrical insulation material, such as an epoxy, nylon, Teflon.RTM., or vinyl. Additionally, the inner and outer surfaces of can 412 are also coated in the region of the open end of can 412. Such coatings 475 may be applied directly to the can and cover by spraying, dipping, or electrostatic deposition. By providing such a coating, negative outer cover 445 may be electrically insulated from can 412 [0097]. By applying the insulation coating to the areas of the can, cover, and collector nail within the battery that are proximate the void area within the battery's internal volume, those areas may be protected from corrosion. While a coating consisting of a single layer of the epoxy, nylon, Teflon.RTM., or vinyl materials noted above will function to prevent such corrosion, it is conceivable that the coating may be applied using layers of two

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different materials or made of single layers of different materials applied to different regions of the components. For example, the peripheral region of the cover may be coated with a single layer of material that functions both as an electrical insulator and an anti-corrosion layer, while the central portion on the inner surface of the cover may be coated with a single layer of a material that functions as an anti-corrosion layer but does not also function as an electrical insulator. Such materials may include, for example, asphalt or polyamide [0098]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the inner face of the can with an anti-corrosion layer for the benefit of making the lid corrosion resistant and thus, increasing the service life of the battery.

The Examiner has taken the definition of "clad" to mean: to cover with a protective or insulating layer of other material, from The American Heritage Dictionary. Thus, the anti-corrosion resistant layer of Tucholski reads on the Applicant's "clad plate."

clad¹



pronunciation

tr.v. **clad**, **clad.ding**, **clads**.

1. To sheathe or cover (a metal) with a metal.
2. To cover with a protective or insulating layer of other material.
[Back-formation from cladding.]

The American Heritage Dictionary of the English Language, © Houghton Mifflin Company 2003 ⓘ

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clad 1. (2003). In *The American Heritage® Dictionary of the English Language*. Retrieved August 28, 2007, from <http://www.credoreference.com/entry/4073723>

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl



SUSYTSANG-FOSTER
PRIMARY EXAMINER